

● Questions 16 and 17 are based on the given spreadsheet and information given below.

- * Circumference of a circle can be calculated with the formula $2\pi r$, where r is the radius of the circle.
- * Assume that the value of π is given in cell C2.

	A	B	C
1	Radius	Circumference	π
2	20	125.6637061	3.14159
3	21	131.9468915	
4	25	157.0796327	
5	22	138.2300768	
6			

16. What formula should be entered into cell B2 to calculate the circumference of the circle?

(1) $=2*\$C\$2*A2$ (2) $=2*\$C2^{\wedge}A2$ (3) $=2^{\wedge}C2^{\wedge}A2$ (4) $=2^{\wedge}C2^{\wedge}A2$

17. Which of the following will appear in cell A6 if the formula $=SUM(A2:A5)/COUNT(A2:A5)$ is entered in cell A6?

(1) 1 (2) 17.6 (3) 22 (4) 88

18. Consider the following statements relating to a slide with multiple objects, created using a presentation software:

- A - The *animation effects* can be applied to multiple objects on a given slide
- B - The *slide transition* can be applied to the whole slide only
- C - The *slide transition effect* appears when slides change from one to the next during the *slide show view*

Which of the above statements are correct?

(1) A and B only (2) A and C only (3) B and C only (4) All A, B and C

● Questions 19 to 22 are based on the following database tables that are used to store student subject marks.

Student Table

DoB	Name	Student_No	Class
20/11/95	Sarath	1001	1A
17/12/95	Kolitha	1002	1A
21/10/95	Kapila	1003	1A
18/12/95	Nalin	1004	1B

Subject Table

Sub_Code	Subject
01	Sinhala
02	Art
03	English

Marks Table

Sub_Code	Student_No	Marks
01	1001	85
02	1001	80
01	1002	65
03	1003	70

19. How many fields are in the Subjects table?

(1) 2 (2) 3 (3) 4 (4) 6

20. What would be the most suitable field as the primary key for the Student Table?

(1) Student_No (2) DoB (3) Name (4) Class

21. What would be an example for a foreign key in the database?

(1) Sub_Code in Subject Table (2) Sub_Code in Marks Table
 (3) Marks in Marks Table (4) DoB in Student Table

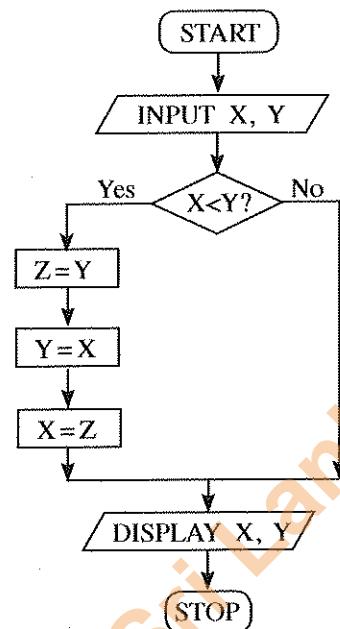
22. How many marks did Kapila obtain for English?

(1) 65 (2) 70 (3) 80 (4) 85

23. The capacity of hard disk is 1TB. Which of the following is equivalent to the capacity of this hard disk?

(1) 1024 GB (2) 10240 GB (3) 102400 MB (4) 1024 MB

24. Consider the algorithm in the following flowchart:



What values will be displayed for X and Y respectively, if the inputs are $X = 10$ and $Y = 20$ for the given flowchart?

(1) 10, 10 (2) 10, 20 (3) 20, 10 (4) 20, 20

25. Consider the following pseudocode:

```

product = 1
number = 0
repeat
    number = number + 1
    product = product * number
until number >= 5
display product
  
```

What value would be displayed for $product$ by the above algorithm?

(1) 20 (2) 60 (3) 120 (4) 25

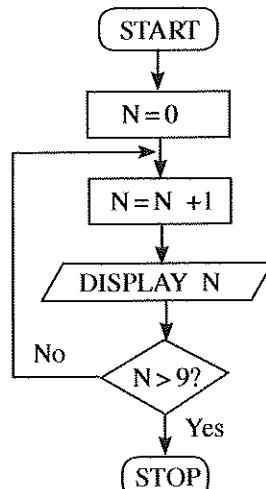
26. Which of the following pseudocode segments is equivalent to the logic of the algorithm given in the flowchart?

(1) $N=1$
while $N \leq 10$
 $N=N+1$
 display N
end while

(2) for $N=0$ to 10 do
 display N

(3) $N=0$
while $N \leq 10$
 display N
 $N=N+1$
end while

(4) for $N=1$ to 10 do
 display N



27. Consider the following pseudocode:

```

X = 0
do
    display '*'
    X = X + 2
  while X < 5
  
```

As the output of the above pseudocode, how many times the '*' will be displayed?

(1) 2 (2) 4 (3) 5 (4) 6

28. Consider the following pseudocode:

```

if average>70 then
    if Sport_colour = 'True' then
        Allrounder_award = 'True'
    end if
end if

```

Which of the following is equivalent to the logic of the above pseudocode?

- (1) if average>70 AND Sport_colour = 'True' then Allrounder_award = 'True'
- (2) if average>70 OR Sport_colour = 'True' then Allrounder_award = 'True'
- (3) if average>70 then Allrounder_award = 'True'
- (4) if Sport_colour = 'True' then Allrounder_award = 'True'

● Use the following paragraph to answer questions 29 and 30.

Currently users of a school library can reserve a book by filling a form. The library informs the user by sending a letter when the book is available. Sometimes, the library informs the wrong users by mistake. The librarian is planning to introduce a new information system to replace the current manual system. With the new system a user can reserve a book online. The system sends an email to the user when the book reserved is available to borrow. The librarian suggested that both manual system and the new system to operate till they make sure that the new system works without any problem.

29. Consider the following statements related to the librarian's proposal:

A - The new system will improve efficiency of the reservation process
 B - The new system will improve accuracy of the reservation process
 C - The new system will have a negative impact on users who cannot get access to the Internet

Which of the above statements are valid?

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All A, B and C

30. Which of the following is the proposed implementation approach for the above Information System?

- (1) Parallel
- (2) Phased
- (3) Direct
- (4) Pilot

31. Consider the URL "http://www.doenets.lk/exam/". The "doenets.lk" is called,

- (1) Domain Name.
- (2) Hypertext Transfer Protocol.
- (3) Path where the resource is located.
- (4) Resource.

32. Which of the following can be used to find a piece of information on a website when the relevant URL is not known?

- (1) Search engine
- (2) File Transfer Protocol (FTP)
- (3) Email server
- (4) Domain Name Server

33. Which of the following is a correct email address?

- (1) saman_moe.gov.lk
- (2) saman@moe.gov.lk
- (3) saman.moe.gov.lk
- (4) #samam@moe.gov.lk

34. Which of the following in HTML, can be used to provide substitute information for an image if a user cannot view the image due to slow internet connection?

- (1) src
- (2) href
- (3) alt
- (4) img

35. What is the correct HTML code segment for creating the hyperlink, 'Ministry of Education' for <http://www.moe.gov.lk>?

- (1) <a>http:// www.moe.gov.lk
- (2) Ministry of Education
- (3) Ministry of Education
- (4) Ministry of Education

36. Which of the following HTML tags can be used to make a numbered list in HTML?

- (1)
- (2) <dl>
- (3)
- (4) <list>

37. Consider the following scenarios:

- A - Obtaining a copy of an original birth certificate online
- B - Paying water bills online using the website of the National Water Supply and Drainage Board
- C - Obtaining the revenue license for a vehicle online

Which of the above are e-government related services?

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All A, B and C

38. Which of the following have the risk of spreading malware?

- A - Pirated software downloaded from Internet
- B - Printer connected to computer
- C - Using a USB flash drive in a common computer lab

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All A, B and C

39. Which of the following is/are (an) example/s of safe use of Internet?

- A - Hiding personal information such as telephone numbers and addresses on social media
- B - Clicking on links in emails that come from unknown persons
- C - Communication with strangers on social media

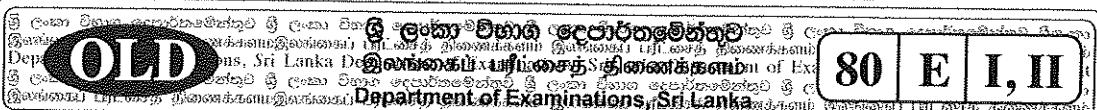
- (1) A only
- (2) B only
- (3) C only
- (4) A and C only

40. Which of the following statements are correct?

- A - Web browser can be used to view web pages in HTML
- B - The Internet is a service of the WWW
- C - Hyperlinks are used to link webpages

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) All A, B and C

* *



අධ්‍යායන පොදු සහතික පත්‍ර (සාමාන්‍ය පෙළ) විභාගය, 2017 දෙසැම්බර් කළුවිප් පොතුත් තුරාතුරුප පත්තිර (සාතාරණ තරු)ප ප්‍රේෂණ, 2017 දිසේම්බර්
General Certificate of Education (Ord. Level) Examination, December 2017

තොරතුරු හා සන්නිවේදන තාක්ෂණය I, II

තකව්ල තොටුපාටල තොழිගුණපාලියල් I, II

Information & Communication Technology I, II

Information & Communication Technology II

Note :

* Answer five (05) questions only, selecting the first question and four others.

* First question carries 20 marks and each of the other questions carries 10 marks.

1. (i) Sama goes to a bookshop to buy 3 exercise books and 2 pens. After finding the items, she takes them to the counter where the sales assistant scans the bar code stickers attached to each item into the information system in the shop. Quantities of each item are also entered into the system. The system calculates the cost for each item and the total cost of all the items. Then the system prints the bill for the transaction.

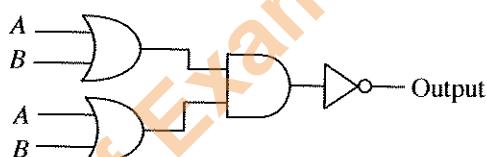
Write down one example each for input, process and output of the information system.

(ii) Draw diagrams for the following Network topologies.

(a) Star topology

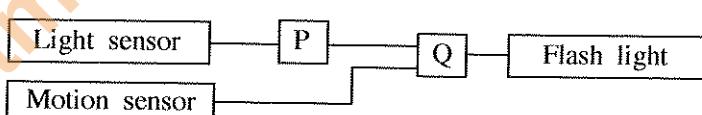
(b) Ring topology

(iii) Draw the truth table for the logic circuit given below.



(iv) A flashlight with motion and light sensors is located outside a front door of a building. The light turns 'on' automatically when it is dark and when someone approaches the door from outside (when both conditions are satisfied). The motion sensor turns from OFF (0) to ON (1) when someone comes near the door. The light sensor is ON (1) when there is light and OFF (0) when it is dark.

The block diagram of the circuit relating to this scenario is shown below.

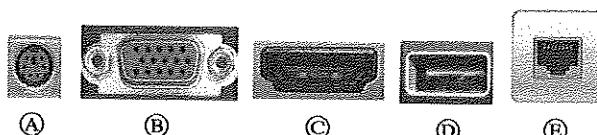


What are the suitable logic gates for P and Q in the above circuit?

(v) Convert the binary number 110111001100_2 to Octal. Show steps in your calculation.

(vi) If letter L is represented as 1001100_2 in an encoding system, what would be the decimal number for N?

(vii) The following ports labelled (A) - (E) are found in a computer.

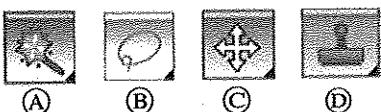


Write down the relevant label of the port related to the following questions:

(a) Which port can be used to access Internet using a network (UTP) cable?

(b) What port can be used to connect a digital camera to copy photos into the computer?

(viii) Some icons used in graphic design software are labelled as Ⓐ - Ⓨ.



Identify the correct name for each tool from the list given below. Write down the tool name against labels Ⓐ - Ⓨ.

List: [crop tool, lasso tool, hand tool, brush tool, clone stamp tool, magic wand tool, move tool]

(ix) Consider the pseudocode below:

```

count=0
i=0
while count <=4
    count = count + 1
    i = i*2 + 1
    display count, i
endwhile

```

value of count	value of i

Copy the above table and fill the values of *count* and *i* that is displayed by the pseudocode.

(x) Consider the following phrases labelled ① - ④.

- ① - An IP address
- ② - A service of the Internet
- ③ - A webpage
- ④ - A Protocol

Identify the matching terms for phrases ① - ④ from the list and write down against labels.

List: [HTTP, Domain Name Server, 222.165.180.150, www.nie.lk, info@moe.lk]

2. The following spreadsheet segment shows CO₂ emission (kt) of some Asian countries in the years 1972 and 2014.

	A	B	C	D	E
1	CO ₂ Emission (kt) of some Asian countries				
2	Country Name	1972	2014	Difference	Percentage
4	Bangladesh	3509.319	73189.653		
5	Bhutan	3.667	1001.091		
6	China	931575.681	10291926.9		
7	India	217849.136	2238377.14		
8	Japan	853373.239	1214048.36		
9	Sri Lanka	3542.322	18393.672		
10	Maldives	3.667	1334.788		
11	Total CO ₂ Emission (kt)				

(source: World Development Indicators)

(i) Write down the formula that should be written in cell D4 to find the difference of CO₂ emission between years 2014 and 1972 in Bangladesh.

[Difference = Value of year 2014 - Value of year 1972]

(ii) Write down the formula that should be written in cell E4 to calculate the percentage increase of CO₂ emission from 1972 to 2014 for Bangladesh.

[Percentage Increase = (Difference / Value of year 1972) × 100]

(iii) Assume that the two formulae entered to cells D4 and E4 are copied to the cell range D5:E10.

Write down respectively the two formulae displayed in cell D9 and E9 that are related to Sri Lanka.

(iv) A formula in the form of *=function1(cell1:cell2)* is written in cell B11 to calculate the total CO₂ emission in all countries in 1972. Write down the relevant terms for *function1*, *cell1* and *cell2*.

(v) Name the most suitable chart type in spreadsheet software to show the CO₂ emission of given countries in 1972 and 2014.

3. Assume that the following database tables are used to calculate the electricity bills. The same rate is used to complete the bill of a given customer.

Customer_Data Table

Name	Acc_No	Type
A.B. Silva	1001	R
V. Balasingham	1002	C
S.S. Gamage	1003	R
R.T. Alles	1004	C

Rate Table

Type	Rate
R	10.50
C	18.50

Usage Table

Month	Acc_No	Units
January	1001	185
February	1001	280
January	1002	165
May	1003	270

(i) Write two primary keys and their corresponding tables.
 (ii) Write two foreign keys and their corresponding tables.
 (iii) What would be the most suitable table in the database to add the field *customer_address*?
 (iv) What tables should be updated if a new customer called *A.B.C Navaz* of type *R* has used 120 units for the month of April?
 (v) Write down the updated rows and their respective table names for the updates given (iv) above. (Assume that *Acc_No* is 1005.)

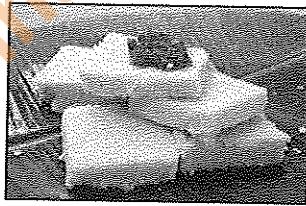
4. (i) Consider the following figure which shows HTML source file with missing tags and parameters labelled ①-⑧ on the left and its output on the right.

HTML source

```
<!DOCTYPE html>
<html>
<body>
<h2><①> Milk Rice </①></h2>
<② src="milkrice.jpg" alt="Milk Rice">
<p align ="③"> <④>Kiribath</④> is a traditional dish
 which is fit for any auspicious moment. Kiribath also
 known as milk rice is normally served with "lunu
 miris", a mixture of red onions and spices as well as
 with bananas, jaggery & curries. It's a must have for
 <⑤>New Year</⑤> celebrations & a popular breakfast
 dish too." </p>
<⑥>
<li>3 Cups of Long grain rice (short grain or white rice)</li>
<li>3 Cups of Coconut milk (thick)</li>
<li>4 <⑦>1</⑦>/<⑧>2</⑧> Cups of Water</li>
<li> <⑦>3</⑦>/<⑧>4</⑧> Teaspoons of Salt </li>
<⑨>
</body>
</html>
```

Output

Milk Rice



"Kiribath is a traditional dish which is fit for any auspicious moment. Kiribath also known as milk rice is normally served with "lunu miris", a mixture of red onions and spices as well as with bananas, jaggery & curries. It's a must have New Year celebrations & a popular breakfast dish too."

- 3 Cups of Long grain rice (short grain or white rice)
- 3 Cups of Coconut milk (thick)
- 4 ½ Cups of Water
- ¾ Teaspoons of Salt

Select the correct tag or parameter from the following list for labels numbered ①-⑧ in the HTML source code above and write them down against each number.

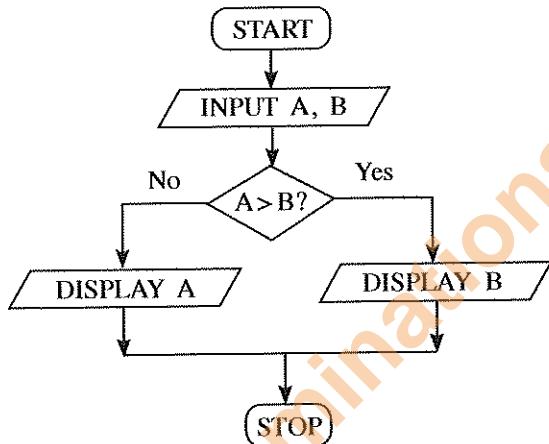
List : [center, b, br, em, img, justify, i, ol, s, sup, sub, p, tr, td, marquee, u, ul]

(ii) Consider the following part of an email sent to Ajith and three others:

To	ajith@doe.lk
cc	rizvi@nie.lk, kumar@school.net
BCC	frank@nie.lk
Subject	Examination Results

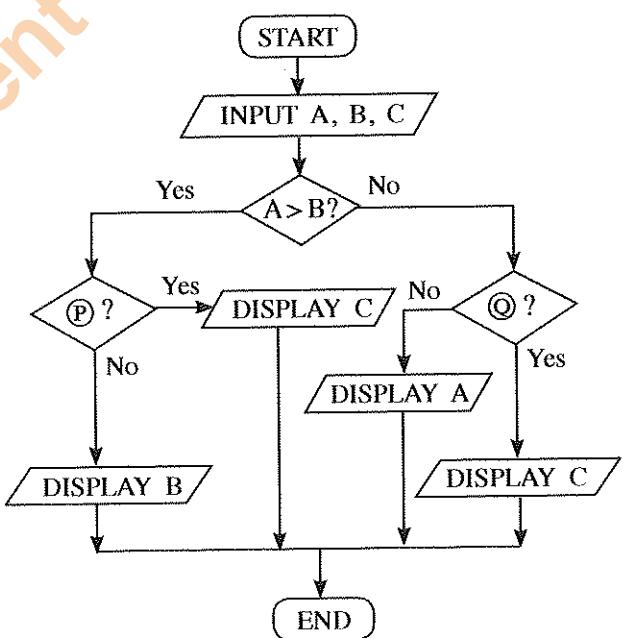
(a) Who are the recipients that Ajith will see as having received this email?
 (b) Who are the recipients that Kumar will see as having received this email?
 (c) Who are the recipients that Frank will see as having received this email?

5. (i) The following flowchart shows an algorithm that reads two numbers and display the smaller number.

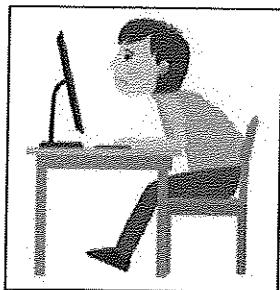


Write the pseudocode for the algorithm in the flowchart given above.

(ii) The following flowchart reads three numbers and finds the smallest. Write down the correct expressions for missing labels \textcircled{P} and \textcircled{Q} .



6. (i) The diagram shows how a person works on his computer.
Write **two** health related issues that he may face due to the posture.



(ii) Consider the following scenarios labelled ① - ③.

- ① - A person copying licensed software downloaded from Internet and selling to others.
- ② - A person logging into a social media account using a stolen user name and a password.
- ③ - A farmer in one country uses agricultural information on web, while a farmer in another country is unable to use such information as he does not know how to use computers and does not have access to Internet.

Identify the suitable terms from the list given below for each of the above scenarios and write down the relevant term against the labels ①-③.

List: [Piracy, Cyber crime, Digital divide, Privacy, Electronic business]

(iii) Write down **two** benefits of a Learning Management System (LMS) you could gain as a learner?

7. Consider the following scenario related to the development of a library information system.

The librarian proposed to introduce a new computerized information system to manage its operations. **Anwar** identified the requirements of the proposed system. Then he designed a system that satisfies the requirements. Based on the design made by **Anwar**, **Malani** developed the software. **Krishna** tested the software. **Saman** installed the system in the library. A few months later, **Malani** fixed problems in the new system and modified the software to print two additional reports.

- (a) Who is involved in the system development (coding) phase of systems development life cycle?
- (b) Which phase of the systems development life cycle was carried out by Saman?
- (c) Which phase of the systems development life cycle was carried out by Krishna?
- (d) Write **two** different methods that Anwar can use to understand the requirements of the proposed system.
- (e) Anwar assessed whether the new system is able to run with the available computers in the library. What feasibility was assessed in this scenario?

* * *

Department of Examinations Sri Lanka

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